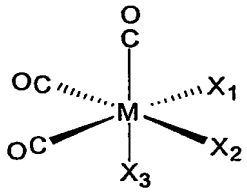
CLAIMS

1. Use of metal tricarbonyl compounds of the general formula $[M(CO)_3L_3]^+$, wherein M is rhenium or technetium or an isotope thereof and L is a ligand, for the preparation of a chemotoxic and optionally radiotherapeutic medicament for the treatment of cancer.

2. Use as claimed in claim 1, wherein the medicament is chemotoxic by causing intrastrand linkages in DNA.

3. Use as claimed in claim 1 or 2, wherein at least one of L is not OH_2.

4. Use as claimed in any one of the claims 1-3, wherein the tricarbonyl compounds are of the general formula:



wherein

M is rhenium or technetium or an isotope thereof;

at least one of X_1, X_2 and X_3 is a monodentate ligand; or two of X_1, X_2 and X_3 are part of a bidentate ligand and the other one is optionally a monodentate ligand.

5. Use as claimed in claim 4, wherein the monodentate ligand is selected from the group consisting of halogens, CO, aromatic heterocycles, thioethers, isocyanides.

6. Use as claimed in claim 5, wherein the halogens are selected from the group consisting of bromo, iodo, fluoro, chloro.

7. Use as claimed in claim 5, wherein the aromatic heterocycles are selected from the group consisting of pyridine, pyrimidine, pyrazine, imidazole, pyrazole,

triazole, tetrazole, thiazole, oxazole and organic molecules having one of this group as an integral part.

8. Use as claimed in claim 7, wherein the purine is guanine or 9-methyl guanine.

9. Use as claimed in claim 5, wherein the thioethers are selected from the group consisting of linear substituted dialkyl-thioethers or cyclic thioethers such as tetrahydrothiophen and other organic molecules containing a thioether functionality as an integral part of it.

10. Use as claimed in claim 5, wherein the isocyanides are selected from the group consisting of organic molecules comprising a terminal -NC group coupled to an alkyl chain optionally comprising a functionality such as a -COOH, $-NH_2$, -X, -SH, -OH group.

11. Use as claimed in claim 5, wherein the bidentate ligand is an amino acid or dicarboxylate.

12. Use as claimed in claim 11, wherein the amino acid is an anionic amino acid.

13. Use as claimed in claim 11, wherein the amino acid is a non-natural α- or β-amino acid.

14. Use as claimed in claim 13, wherein the non-natural amino acid is N,N-dimethyl glycine.

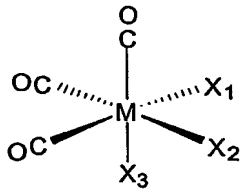
15. Use as claimed in any one of the claims 4-14, wherein at least two of the ligands of the tricarbonyl complex shown in formula I are exchanged by guanine or guanosine after 3 days at 37°C with guanine or guanosine being present in a slight excess over rhenium or technetium.

16. Use as claimed in any one of the claims 4-15, wherein the compound is selected from the compounds as depicted in **Figure 16** and combinations thereof.

17. Use as claimed in any one of the claims 4-16, wherein X_1 and/or X_2 and/or X_3 are coupled to a targeting moiety.

18. Use as claimed in claim 17, wherein the targeting moiety is selected from the group consisting of bombesin, neurotensin, somatostatin, glucosamine, nucleosides, nuclear localizing sequence peptides (NLS-peptides) oligonucleotides, nucleus targeting molecules such as anthracyclines, acridines and other intercalators, and derivatives or analogues thereof.

19. Tricarbonyl compounds of the general formula:



(I)

wherein
M is rhenium or technetium or an isotope thereof;
at least one of X_1, X_2 and X_3 is a monodentate ligand selected from the group consisting of halogens, CO, aromatic heterocycles, thioethers, isocyanides; or
two of X_1, X_2 and X_3 are part of a bidentate ligand selected from amino acids and dicarboxylates and the other one is optionally a monodentate ligand selected from the group consisting of halogens, CO, aromatic heterocycles, thioethers, isocyanides.

20. Compounds as claimed in claim 19, wherein the halogens are selected from the group consisting of bromo, iodo, fluoro, chloro.

21. Compounds as claimed in claim 19 or 20, wherein the aromatic heterocycles are selected from the group consisting of pyridine, pyrimidine, pyrazine, imidazole, pyrazole, triazole, tetrazole, thiazole, oxazole and organic molecules having one of this group as an integral part.

22. Compounds as claimed in claim 21, wherein the purine is guanine or 9-methyl guanine.

23. Compounds as claimed in any one of the claims 19-22, wherein the thioethers are selected from the group consisting of linear substituted dialkyl-thioethers or cyclic thioethers such as tetrahydrothiophen and other organic molecules containing a thioether functionality as an integral part of it.

24. Compounds as claimed in any one of the claims 19-23, wherein the isocyanides are selected from the group consisting of organic molecules comprising a terminal -NC group coupled to an alkyl chain optionally comprising a functionality such as a -COOH, $-NH_2$, -X, -SH, -OH group.

25. Compounds as claimed in any one of the claims 19-24, wherein the bidentate ligand is an amino acid or dicarboxylate.

26. Compounds as claimed in claim 25, wherein the amino acid is an anionic amino acid.

27. Compounds as claimed in claim 25, wherein the amino acid is a non-natural α- or β-amino acid.

28. Compound as claimed in claim 27, wherein the non-natural amino acid is N,N-dimethyl glycine.

29. Compounds as claimed in any one of the claims 19-28, wherein at least two of the ligands of the tricarbonyl complex shown in formula I are exchanged by guanine or guanosine after 3 days at 37°C with guanine or guanosine being present in a slight excess over rhenium or technetium.

30. Compound as depicted in **Figure 16**.

31. Compound as claimed in claim 30, being complexes 6, 10, 11, 12, 13 and 18 as depicted in **Figure 16**.

32. Compounds as claimed in any one of the claims 19-31, wherein X_1 and/or X_2 and/or X_3 are coupled to a targeting moiety.

33. Compounds as claimed in claim 32, wherein the targeting moiety is selected from the group consisting of bombesin, neurotensin, somatostatin, glucosamine, nucleosides, nuclear localizing sequence peptides (NLS-peptides) oligonucleotides, nucleus targeting molecules such as anthracyclines, acridines and other intercalators, and derivatives and analogues thereof.